AMENDMENTS TO THE CLAIMS

Claims 1-34. (Canceled)

35. (Currently amended): A method for extracting manganese from a multi-component solution, comprising:

contacting the multi-component solution with a reagent to create a reaction solution, wherein the reagent comprises a quaternary ammonium compound, a hydrogen ion exchange reagent and an organic solvent (QL reagent), wherein the reaction solution is heated to a temperature in the range of about 180°F to about 230 °F; and

removing one or more non-manganese impurities from the reaction solution to create an impurity depleted reaction solution; and

extracting manganese from the impurity depleted reaction solution, wherein the pH of the solution remains constant.

36. (Previously Presented) The method of claim 35, wherein the pH of the solution remains above 1.5.

37. (Previously Presented): The method of claim 35, wherein step (b) comprises stripping the reaction solution by contacting the reaction solution with an acid; oxidizing and precipitating one or more of the impurities in the reaction solution; and removing the oxidized and precipitated impurities from the reaction solution to create an impurity depleted reaction solution.

38. (Previously presented): The method of claim 37, wherein the acid comprises a non-oxidizing acid.

39. (Previously presented): The method of claim 37, wherein calcium is extracted from the reaction solution during the stripping step.

40. (Previously presented): The method of claim 35, wherein calcium is extracted from the multi-component solution in a further step comprising: introducing manganese-rich strip solution to the reaction solution; displacing calcium from the reaction solution; and scrubbing the displaced calcium from the solution.

41. (Previously presented): The method of claim 40, wherein the manganese-rich strip solution contains an organic phase/aqueous phase (O/A) ratio between 5-20.

42. (Previously presented): The method of claim 35, wherein the multi-component solution comprises geothermal brine.

43. (Previously presented): The method of claim 42, wherein the geothermal brine contains zinc which is removed from the multi-component solution through a step comprising: contacting the multi-component solution with a reagent to create a mixture, wherein the reagent comprises a quaternary ammonium compound and a hydrogen ion exchange reagent; contacting the mixture with pure H_2O; and separating the zinc from the mixture.

44. (Previously presented): The method of claim 35, wherein a phase modifier is contacted with the reaction solution in step (a).

45. (Previously presented): The method of claim 35, wherein the impurity depleted reaction solution comprises manganese chloride.

46. (Previously presented): The method of claim 35, wherein in step (c) the impurity depleted reaction solution is combined with an acid to produce an electrolyte bath.

47. (Previously presented): The method of claim 46, wherein the acid is sulfuric acid or hydrochloric acid.

48. (Canceled)

49. (Currently amended): A method for extracting manganese from a composition containing an impurity, comprising:

contacting a composition containing manganese and one or more impurities with a QL reagent to create a reaction solution, wherein the reaction solution is heated to a temperature in the range of about 180°F to about 230 °F;

contacting the reaction solution with an acid;

oxidizing and precipitating one or more of the impurities in the reaction solution;

removing the oxidized and precipitated impurities from the reaction solution to create an impurity depleted reaction solution; and

applying an electric current to the impurity depleted reaction solution and removing the manganese therefrom, wherein the pH of the solution remains constant.

50. (Previously presented): The method of claim 49, wherein the QL reagent comprises a quaternary ammonium compound, a hydrogen ion exchange reagent and an organic solvent.

51. (Previously presented): The method of claim 49, wherein the acid is a non-oxidizing acid.

52. (Previously presented): The method of claim 49, wherein all components of step (a) are performed under anoxic conditions.

53-54. (Canceled)